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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/524,439 | 02/15/2005 | Mikael Georgson | P70412US0 | 4453 |
| 136 7590 12/22/2006 JACOBSON HOLMAN PLLC 400 SEVENTH STREET N.W. SUITE 600 WASHINGTON, DC 20004 | | | EXAMINER LE, HIEN | |
| | | | ART UNIT 3662 | PAPER NUMBER |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/524,439

Applicant(s)

GEORGSON ET AL.

Examiner

Hien Le

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☒ Certified copies of the priority documents have been received in Application No. Sweden 0202432-1.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION***Priority***

Acknowledgement is made of applicant's claim for foreign priority based on an application filed in Sweden on August 15, 2002. It is noted, however, that applicant has not filed a certified copy of the Germany application as required by 35 U.S.C. 119(b). In order to fully meet the requirement of 119(b) a translation of the foreign priority document is required. MPEP 2304.01(c).

Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a certified English translation of the foreign application must be submitted in reply to this action, 37 CFR 41.154 (b) and 41.202 (e). Failure to provide a certified translation may result in no benefit being accorded for the non-English application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding claims 5 and 10, the phrases "such as" renders the claim indefinite because they are unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims **1-10 and 12-13** are rejected under 35 U.S.C. 102(e) as being unpatentable by **Dannenberg (U.S. Patent # 6,589,657)**.

Considering **claim 1**, Dannenberg discloses the limitations of a pane (1) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, comprising:

- A first layer (20), with which the pane is adapted to reflect the major part of a first electromagnetic radiation emitted by an enemy, and to reduce the pane's emittance of a second electromagnetic radiation received by the enemy. “ The first layer is deposited adjacent to a substrate. The first layer has an optical thickness of about $0.27 \lambda_0$ to about $0.31 \lambda_0$, where λ_0 is a reference wavelength corresponding to a spectral region bound by or in the visible spectrum. A second layer having an optical thickness of about

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0.1 λ_0 to about 0.25 λ_0 and a refractive index from about 2.2 to 2.6 is deposited" (abstract).

- A second layer (21, 22) which is arranged on the first layer (20), with which second layer the pane is adapted to increase said emittance of the second electromagnetic radiation to such an extent that the difference in intensity between the second electromagnetic radiation received by the enemy from the pane and the intensity from the parts of the combat vessel which adjoin the pane, becomes so small that the pane essentially cannot be distinguished in an image of the combat vessel generated by said second electromagnetic radiation, and to essentially maintain the pane's capability of reflecting the first radiation. " A third layers having a refractive index from about 1.46 to about 1.52 is deposited" (abstract).

Therefore, it is well known to one skill in the art that all three layers in the reference explicitly teach the limitations of a first layer (20) and a second layer (21,22) as listed above because each layer in the reference is built corresponding with different refractive index. Also, the thicknesses of layers are measured corresponding to the value of λ_0 .

Doing so would prove Dannenberg successfully discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, comprising a first layer and second layers characterized as listed above.

Considering **claim 2**, Dannenberg discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized in that:

- The first layer (20) comprises an electrically conductive material and is arranged to reflect radar beams. " The first layer 45 may be in dielectric, such as zinc oxide, hafnium oxide, antimony oxide, stannic oxide, or gadolinium oxide" (column 3, line 65-67). It is well known to one skill in the art that zinc oxide, hafnium oxide, antimony oxide, stannic oxide, or gadolinium oxides are electrical conductive materials because those compounds are metal oxide materials.
- The second layer (21, 22) comprises at least one predetermined material and is arranged to increase, by means of the kind of material of said material, the emittance of the pane within at least part of the IR light range 2-20 μm . " The third layer maybe silicon dioxide or magnesium fluoride" (column 4, line 3-5). It is well known to one skill in the art that silicon dioxide and magnesium fluoride are ceramic materials and emit at least part of the IR range 2-20 μm .

Therefore, Dannenberg successfully discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized a first layers and second layers as listed above.

Considering **claim 3**, Dannenberg discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of

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its own, preferably visible light, characterized in that the predetermined material is a first material capable of increasing the emittance of the pane in the IR light range 3-5 μm , and that the first material is included in a first coating (21), which is arranged directly or by the intermediary of some other coating on the first layer (20). “ The first layer 45 may be in dielectric, such as zinc oxide, hafnium oxide, antimony oxide, stannic oxide, or gadolinium oxide” (column 3, line 65-67).

It is well known to one skill in the art that zinc oxide, hafnium oxide, antimony oxide, stannic oxide, or gadolinium oxides are metal oxide materials. Also, the metal oxide layer is actively capable to detect the IR light in the range 3-5 μm . Therefore, Dannenberg successfully discloses the listed limitations above.

Considering **claim 4**, Dannenberg discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized in that the first material is near stoichiometric. “ The first layer 45 may be in dielectric, such as zinc oxide, hafnium oxide, antimony oxide, stannic oxide, or gadolinium oxide” (column 3, line 65-67), and “ the second layer 47 may be titanium oxide niobium oxide, or tantalum oxide” (column 4, line 3-4).

It is well known in the art that titanium is characterized as near stoichiometric. Therefore, Dannenberg successfully discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own as shown above.

Considering **claim 5**, Dannenberg discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of

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its own, preferably visible light, characterised in that the first material comprises a metal oxide with relatively low electrical resistance, such as certain materials of the kinds: titanium oxide, zirconium oxide, hafnium oxide, magnesium oxide or tin oxide. " The first layer 45 may be in dielectric, such as zinc oxide, hafnium oxide, antimony oxide, stannic oxide, or gadolinium oxide" (column 3, line 65-67), and " the second layer 47 may be titanium oxide, niobium oxide, or tantalum oxide" (column 4, line 3-4).

Considering **claim 6**, Dannenberg discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the tin oxide is a tin dioxide (SnO_2). " The first layer 45 may be in dielectric, such as zinc oxide, hafnium oxide, indium tin oxide, antimony oxide, stannic oxide, or gadolinium oxide" (column 3, line 65-67).

It is well known to one skill in the art that indium tin oxide is the mixture of indium oxide (In_2O_3) and tin oxide (SnO_2). Therefore, Dannenberg successfully discloses the limitations of a pane (I) for a combat vehicle or vessel as shown above.

Considering **claim 7**, discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the first coating (21) has a thickness of $0.3\text{-}0.8\text{ }\mu\text{m}$, preferably about $0.5\text{ }\mu\text{m}$. " The first layer is deposited adjacent to a subtract. The first layer has an optical thickness of about $0.27\lambda_0$ to about $0.31\lambda_0$, where λ_0 is a reference wavelength corresponding to a spectral region bound by or

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in the visible spectrum. A second layer having an optical thickness of about $0.1 \lambda_o$ to about $0.25 \lambda_o$ and a refractive index from about 2.2 to 2.6 is deposited" (abstract), and " λ_o is a reference wavelength corresponding to a spectral region bound by or in the visible spectrum. The visible spectrum is from about 380 nm to about 780 nm".

It is well known to one skill in the art that the thicknesses of two layers in the reference are approximately in the range 0.3-0.8 μm . Therefore, Dannenberg successfully discloses the listed limitations above.

Considering **claim 8**, discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the predetermined material is a second material capable of increasing the emittance of the pane in the IR light range 7-14 μm , and that the second material is included in a second coating (22), which is arranged directly or by the intermediary of some other coating on the first layer (20). " The third layer maybe silicon dioxide or magnesium fluoride" (column 4, line 3-5). It is well known to one skill in the art that silicon dioxide and magnesium fluoride are ceramic materials and actively emit in the IR range 7-14 μm .

Considering **claim 9**, discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized in that the second material is of the type that has residual beam properties. " A third layers having a refractive index from

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about 1.46 to about 1.52 is deposited" (abstract), and " The third layer maybe silicon dioxide or magnesium fluoride" (column 4, line 3-5).

It is well known to one skill in the art that the chemical structure and thickness of third layer in the reference certainly has residual properties because of the different refractive index and the IR range 's emission.

Considering **claim 10**, discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the second material comprises a ceramic, such as certain materials of the kinds: silicon oxide, for instance quartz, beryllium oxide, beryllium silicate, silicon carbide, sialon, cubic boron nitride and silicon nitride. " The third layer maybe silicon dioxide or magnesium fluoride" (column 4, line 3-5).

Considering **claim 12**, Dannenberg discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the second coating (22) has a thickness of 0.5-1.5 μm , preferably about 1.0 μm ." the third layer 49 has a low refractive index, such as a refractive index from bout 1.46 to about 1.52, and may have an optical thickness of about $0.2 \lambda_0$ to about $0.25 \lambda_0$ " (column 3, line 30-32).

It is well known to one skill in the art that the thicknesses of a third in the reference are approximately in the range 0.5-1.5 μm if the IR range is in the IR light range 7-14 μm . Therefore, Dannenberg successfully discloses the listed limitations above.

Considering **claim 13**, Dannenberg discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the pane is antireflex coated. See FIG.2. " The coating 41 may be applied to a substrate 43, such as a cathode ray tube, a flat panel displayed 51, a web, or a roll. When a ray of light 53 impinges on the surface of the substrate, a smaller fraction of the ray 53 is reflected back as a ray 55. Thus, the coating 41 reduces the reflection light within spectral range" (column 4, line 14-21).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dannenberg (U.S. Patent # 6,589,657)**, in view of **Macquart et al. (U.S. Patent # 6,602,587)**.

Considering **claim 11**, Dannenberg fails to disclose the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized in that the silicon nitride is an oxidised silicon nitride (SiO_xN_y).

However, Macquart et al. successfully discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized in that the silicon nitride is an oxidised silicon nitride (SiO_xN_y).“ the second coating having dielectric material base with a barrier layer for the diffusion of oxygen is chosen from the following materials: compounds of silicon, such as $\text{SiO}_2, \dots, \text{SiO}_x\text{N}_y$ ” column 3, line 34-35).

Therefore, it would have been obvious to teach the barrier layer in the reference characterized in that the silicon nitride is an oxidised silicon nitride (SiO_xN_y)

Doing so would motivate the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized in that the silicon nitride is an oxidised silicon nitride (SiO_xN_y).

7. Claims **14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dannenberg (U.S. Patent # 6,589,657)**, as modified by **Macquart et al. (U.S. Patent # 6,602,587)**, applied to claims 1-13 above, and further in view of **Saxe (U.S. Patent # 3,799,650)**.

Considering **claim 14**, Dannenberg, as modified by Macquart et al., fail to disclose the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized in that the pane comprises a first antireflex coating arranged on the

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second layer (21, 22) and a second antireflex coating arranged on the inner face (9) of the pane.

However, Saxe successfully discloses the limitation of a first antireflex coating arranged on the second layer (21, 22) and a second antireflex coating arranged on the inner face (9) of the pane. " The outer surface of plate 3 (that surface closest to light source 17) may be coated with an anti-reflection coating such as a layer of magnesium fluoride" (column 5, line 35-40).

Therefore, it would have been obvious to teach the antireflex coating can be arranged on the inner surface of the pane and the second layer because the coating acts as an anti glare agent to prevent any light from light source from reflecting off the outer surface of the pane of a combat vehicle or vessel.

Doing so would motivate the limitations of a first antireflex coating arranged on the second layer (21, 22) and a second antireflex coating arranged on the inner face (9) of the pane.

Considering **claim 15**, Saxe also discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterized in that the first and second antireflex coatings consist of magnesium fluoride (MgF). " The outer surface of plate 3 (that surface closest to light source 17) may be coated with an anti-reflection coating such as a layer of magnesium fluoride" (column 5, line 35-40).

8. Claim **16** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dannenberg (U.S. Patent # 6,589,657)**, as modified by **Saxe (U.S. Patent #**

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3,799,650), applied to claims **1-15** above, and further in view of **Bickel (U.S. Patent # 4,296,995)**.

Considering **claim 16**, Dannenberg fails to disclose the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the pane comprises an antireflex coating, consisting of four partial layers, of alternately titanium dioxide (TiO_2) and magnesium fluoride (MgF), arranged on the second layer (21, 22).

However, Bickel successfully discloses the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the pane comprises an antireflex coating, consisting of four partial layers, of alternately titanium dioxide (TiO_2) and magnesium fluoride (MgF), arranged on the second layer (21, 22).” One can provide multilayer diachronic reflecting surfaces by the deposition of suitable dielectric layers which then enables the juxtaposed coupler sections to operate the light beams according to the wavelength or frequency of the light. Dielectric layers such as zinc sulfide, titanium dioxide, magnesium fluoride and other materials as well can be deposited in suitable layers to provide diachronic reflecting surfaces for particular wavelengths associated with beams of light” (column 5, line 53-62).

Therefore, it would have been obvious to teach the limitations of multiple layers of titanium dioxide (TiO_2) and magnesium fluoride (MgF) arranged alternately on surface to perform antireflection of incoming beams.

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Doing so would motivate the limitations of a pane (I) for a combat vehicle or vessel which is transparent to radiation used for a purpose of its own, preferably visible light, characterised in that the pane comprises an antireflex coating, consisting of four partial layers, of alternately titanium dioxide (TiO₂) and magnesium fluoride (MgF), arranged on the second layer (21, 22).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Le whose telephone number is 571-270-1326. The examiner can normally be reached on M-F: 7:30am- 5:00pm.

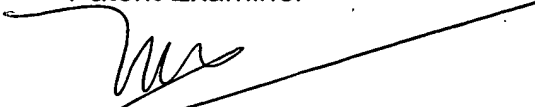
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrell McKinnon can be reached on 571-272-4797. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service

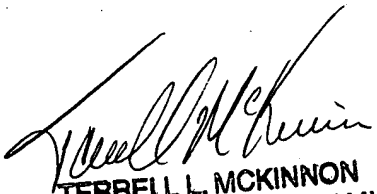
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Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patent Examiner



Hien Le


TERRELL L. MCKINNON
SUPERVISORY PATENT EXAMINER

December 14, 2006